

What is claimed is:

1. An electric power steering device comprising:  
an electric motor which is driven by supply of current;  
5 a controller including a substrate on which drive devices working to drive said electric motor are connected electrically to each other;  
power supply terminal joints which are provided on the substrate of said controller in electrical connection to the drive devices and into which current is inputted from a power supply to drive said electric motor; and  
10 motor terminal joints which are provided on the substrate of said controller in electrical connection to the drive devices and from which the current inputted to said power supply terminal joints is outputted to said electric motor,  
15 wherein said drive devices, said power supply terminal joints, and said motor terminal joints are concentrated on a portion of the substrate of said controller.
- 20 2. An electric power steering device as set forth in claim 1, wherein said controller has a control device working to control the current flowing through said electric motor, and wherein said drive devices, said power supply terminal joints, and said motor terminal joints are installed on a first side portion of the substrate, while said 25 control device is installed on a second side portion of the substrate opposite the first side portion.

3. An electric power steering device as set forth in claim 1, wherein said power supply terminal joints are provided on a first end portion of the substrate of said controller, while said motor terminal joints are provided on a second end portion of the substrate opposite the first end portion.
4. An electric power steering device as set forth in claim 1, wherein said electric motor works to produce torque assisting in turning a steering shaft of an automotive vehicle, wherein said drive devices are implemented by switching transistors working to control a duty cycle of the current supplied to said electric motor, a first relay working to supply the current to said electric motor upon turning on of an ignition switch, a second relay working to cut the current flowing between said electric motor and said switching transistors, and a coil working to minimize a noise arising from the current flowing from a battery, and wherein said first relay, said second relay, and said coil are mounted on a front surface of the substrate of said controller, and further comprising a cover covering said controller, said cover having a bulge portion which covers said first relay, said second relay, and said coil.
5. An electric power steering device as set forth in claim 4, wherein said drive devices also includes a capacitor working to reduce a noise arising from the current flowing out of the battery, wherein said capacitor has a length greater than heights of said first

relay, said second relay, and said coil, and wherein said capacitor is mounted on a back surface of the substrate of said controller with the length extending perpendicular to the back surface of the substrate.

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6. An electric power steering device as set forth in claim 2, wherein said electric motor works to produce torque assisting in turning a steering shaft of an automotive vehicle, and wherein the substrate of said controller has formed in the second side portion a 10 hole through which the steering shaft passes which connects with a steering wheel.

7. An electric power steering device comprising:  
an electric motor which is driven by supply of current;  
15 a controller including a substrate on which drive devices working to drive said electric motor are connected electrically to each other;

20 power supply terminal joints which are provided on the substrate of said controller in electrical connection to the drive devices and into which current is inputted from a power supply to drive said electric motor; and

25 motor terminal joints which are provided on the substrate of said controller in electrical connection to the drive devices and from which the current inputted to said power supply terminal joints is outputted to said electric motor,

wherein the drive devices are arranged between said power

supply terminal joints and said motor terminal joints.

8. An electric power steering device as set forth in claim 7,  
wherein said controller has a control device working to control the  
5 current flowing through said electric motor, and wherein said drive  
devices, said power supply terminal joints, and said motor terminal  
joints are installed on a first side portion of the substrate, while said  
control device is installed on a second side portion of the substrate  
opposite the first side portion.

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9. An electric power steering device as set forth in claim 7,  
wherein said power supply terminal joints are provided on a first end  
portion of the substrate of said controller, while said motor terminal  
joints are provided on a second end portion of the substrate opposite  
15 the first end portion.

10. An electric power steering device as set forth in claim 7,  
wherein said electric motor works to produce torque assisting in  
turning a steering shaft of an automotive vehicle, wherein said drive  
20 devices are implemented by switching transistors working to control  
a duty cycle of the current supplied to said electric motor, a first  
relay working to supply the current to said electric motor upon  
turning on of an ignition switch, a second relay working to cut the  
current flowing between said electric motor and said switching  
25 transistors, and a coil working to minimize a noise arising from the  
current flowing from a battery, and wherein said first relay, said

second relay, and said coil are mounted on a front surface of the substrate of said controller, and further comprising a cover covering said controller, said cover having a bulge portion which covers said first relay, said second relay, and said coil.

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11. An electric power steering device as set forth in claim 10, wherein said drive devices also includes a capacitor working to reduce a noise arising from the current flowing out of the battery, wherein said capacitor has a length greater than heights of said first 10 relay, said second relay, and said coil, and wherein said capacitor is mounted on a back surface of the substrate of said controller with the length extending perpendicular to the back surface of the substrate.

15 12. An electric power steering device as set forth in claim 7, wherein said drive devices include switching transistors working to control a duty cycle of the current supplied to said electric motor, and wherein joints of the switching transistors to the control substrate of said controller are all disposed between said power 20 supply terminal joints and said motor terminal joints.

13. An electric power steering device as set forth in claim 8, wherein said electric motor works to produce torque assisting in turning a steering shaft of an automotive vehicle, and wherein the 25 substrate of said controller has formed in the second side portion a hole through which the steering shaft passes which connects with a

steering wheel.

14. An electric power steering device as set forth in claim 12,  
further comprising a support member which is opposed to the  
5 control substrate of said controller and has the switching transistors  
mounted thereon.

15. An electric power steering device comprising:  
an electric motor which is driven by supply of current;  
10 a controller including a substrate on which drive devices  
working to drive said electric motor are connected electrically, the  
drive devices including a first drive device connected electrically  
between a power supply and said electric motor and a second drive  
device connected electrically between said electric motor and  
15 ground;  
power supply terminal joints which are provided on the  
substrate of said controller for receiving the current to be supplied to  
said electric motor, said power supply terminal joints including a  
first input terminal leading electrically to a power supply and a  
20 second input terminal connected electrically to ground; and  
motor terminal joints which are provided on the substrate of  
said controller, said motor terminal joints including a first output  
terminal leading to the first input terminal and a second output  
terminal leading to the second input terminal for outputting the  
25 current to said electric motor,  
wherein said first and second drive devices are mounted

between said power supply terminal joints and said motor terminal joints.

16. An electric power steering device as set forth in claim 15,  
5 wherein said power supply terminal joints are provided on a first end portion of the substrate of said controller, while said motor terminal joints are provided on a second end portion of the substrate opposite the first end portion.
  
- 10 17. An electric power steering device as set forth in claim 15, wherein said drive devices work to control a duty cycle of the current supplied to said electric motor, said drive devices including first switching transistors connected electrically to the power supply and second switching transistors connected electrically to ground, and  
15 wherein joints of the first and second switching transistors to the control substrate of said controller are all disposed between said power supply terminal joints and said motor terminal joints.
  
18. An electric power steering device as set forth in claim 15  
20 wherein said first input terminal is installed close to said second input terminal, and said second output terminal is installed close to said second output terminal, wherein the substrate of said controller has formed thereon a printed circuit which includes a first conductor coupled directly to said first input terminal, a second conductor coupled directly to said second input terminal, a third conductor coupled directly to said first output terminal, and a fourth

conductor coupled directly to said second output terminal, and  
wherein an interval between said power supply terminal joints and  
said motor terminal joints lies within a range defined by a first  
straight line extending through outer edges of said first and third  
5 conductors and a second straight line extending through outer  
edges of said second and fourth conductors.

19. An electric power steering device as set forth in claim 17,  
further comprising a support member which is opposed to the  
10 control substrate of said controller and has the switching transistors  
mounted thereon.

20. An electric power steering device as set forth in claim 15,  
wherein said electric motor works to produce torque assisting in  
15 turning a steering shaft of an automotive vehicle, wherein said  
controller includes a control device working to control the current  
flowing through said electric motor, wherein said first and second  
drive devices, said power supply terminal joints, and said motor  
terminal joints are disposed on a first side portion of the substrate of  
20 said controller, and said control device is installed on a second side  
portion of the substrate, and wherein the substrate of said controller  
has formed in the second side portion a hole through which the  
steering shaft passes which connects with a steering wheel.